The FORK and BLADE

THE PUBLICATION OF THE LINCOLN OWNERS' CLUB, INC.

JULY-AUGUST 1976 VOLUME 15, NUMBER 4

1936 K, LE BARON CONVERTIBLE ROADSTER, MODEL 330

THE FORK & BLADE is published bi-monthly by The Lincoln Owners' Club at 9821 Copper Hill Road, St.Louis, Mo. 63124. Membership dues are $7.50 per year payable to The Lincoln Owners' Club. Second-Class postage paid at St.Louis, Missouri.

THE FORK AND BLADE

THE FORK AND BLADE is the official publication of The Lincoln Owner's Club Inc. It is a non-profit organization dedicated to the restoration and preservation of the classic Lincoln. The articles and opinions published do not necessarily represent the opinions of the general membership, the club officers, or the editors. Every attempt is made to publish only accurate and beneficial information to club members. However, no responsibility is assumed by the editors or the club for any damages incurred or losses sustained as a result of this information.

CONSTITUTION OF THE LINCOLN OWNERS' CLUB, INC.

Section 1.-Name and Purpose.

The name of the club which is a non-profit membership corporation chartered in the state of Connecticut, shall be The Lincoln Owners' Club, Inc. The purpose for which the club is founded is to further the restoration and preservation of Lincoln motor cars produced by Leland and Ford up through 1940 with the exception of the Zephyr and the Continental, to provide a channel of communication for those interested in such cars, and to bring together in good fellowship all who own or admire these fine examples of automotive craftsmanship.

Section 2.-Members.

The sole requirement for membership is a demonstrable interest in Lincoln automobiles including Leland Lincolns, L series, K series, and KA-KB series, and membership is open to any person with such an interest.

Officers will be elected by the membership by pturality vote at the annual meeting which will take place during the month of October. Officers will consist of a president, vice-president, secretary-treasurer, all to serve for one year and until their successors have been elected.

BOARD OF MANAGERS

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804-270-0433

BYLAWS

1. The principal office of this club shall be maintained at the office of the president.
2. The president shall have custody of the club seal.
3. The officers of the club must approve all applications for membership in this club.
4. Charter members shall be the first twenty-five members who join the club. Fee of $25.00.
5. Dues for active members shall be $7.50 per year.
6. Dues will be charged for the fiscal year beginning February 1st.
7. The annual meeting of the club shall be held during the month of October. Written notice will be sent to all members not less than fourteen nor more than thirty days, before such meeting. A quorum will consist of those members attending the annual meeting. Any member desiring to introduce a subject for discussion at an annual meeting should submit the subject in writing to the club president at least ten days prior to the meeting.
8. These bylaws may be amended at any annual meeting by majority vote of the members present.

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CLUB REPRINT PROJECTS

1. 1924-1930 LINCOLN SERVICE BULLETINS $30.00
2. 1931-1935 LINCOLN SERVICE BULLETINS 25.00
3. AUTHENTIC COVERS FOR 1924-1935 LINCOLN SERVICE BULLETINS . . . 5.00
4. L LINCOLN SHOP MANUAL, Available Soon 20.00
5. 1921 LINCOLN SALES CATALOG, When Avaliable 5.00
6. 1931-38 CHASSIS PARTS CATALOG, (on 4 microfiche cards) 5.00
7. 1931-37 BODY PARTS LIST CATALOG, (on 8 microfiche cards). . . . 5.00

Items #1,2,3,6,&7 are available for immediate delivery. Item #4 is still at the printers awaiting the re-photographing of eight pages and it should be ready, in time, for Hershey. Item #5 will be printed as soon as enough orders are placed. If you are interested in a bargan then read on. As a once only sale you can buy items #1,2,3,6,&7 as a package for $60.50 if you send your check to the Project Chairman, Dick Price and pick them up at the LOC booth at Hershey. All LOC reprints are sold on a money back guarantee. You pay postage and see that items are returned in the same condition as sent.

COMING EVENTS

LINCOLN OWNER'S CLUB ANNUAL BUSINESS MEETING AND DINNER, HERSHEY HOTEL, FRIDAY, OCTOBER 8, 1976

Again this year our LOC Annual Meeting will be at Hershey. Many of you will be at Hershey, so plan to be with us Friday evening.

Our annual business meeting is very important to you, to LOC. It is the time to elect officers for the coming year and discuss our Club's business. It is your opportunity to be heard and <u>listened to</u> regarding LOC.

The business meeting will start at about 9:00 P.M. We will have cocktails and dinner before the meeting. We hope you will be with us, however, if you can't make it for dinner, plan to be at the meeting - 9:00P.M., Castilian Room, Hershey Hotel. Our schedule for the evening is:

6:30 P.M. - Cocktails (cash bar), Fountain Lobby
7:45 P.M. - Dinner, Castilian Room, $12.50 each
9:00 P.M. - LOC Bussiness Meeting

Make your reservation <u>NOW</u>, yes <u>NOW</u>, for a super dinner and good talk. Send your check, with the reservation to Dick Chapman, 914 Longstreet Drive, Brentwood, Tenn. 37027.

HEAVY TRAFFIC

FOR SALE

1928 Sedan, body type #152. This clean and complete classic looks and runs real nice. It has new tires & battery. Make the right offer and you can drive it home - even if you live in Ft. Lauderdale. Scott Church, 7468 West State Street, Boise, Idaho 83702 208-334-4547

1931, window glass for convertible sedan. David A. Cardinali, 2601 East Ocean Blvd., Long Beach, Calif. 90803 213-439-5910

WANTED

1925, Model L, 7-Passenger Touring, serial #26696, needs a complete windshield, fuel vacuum tank, and all doors (probably will have to be made). Edward F. Chambers, 16 Main St., Westford, Mass. 01886 692-2423

1925, Model L, Judkins Short Coupled Sedan, serial #24570, needs a complete set of tools, cigar lighter, & a knob to roll window up. Howard Lay, 3930 Bow Street, Cleveland, Tennessee 37311 615-475-6218

1931, Model K, 4 Door Convertible Sedan, needs a head gasket, both horns, set of tail lights, trunk rack, accs. radio, stone guard, and a full set of 19" wire wheels. David A. Cardinali, 2601 East Ocean Blvd., Long Beach, Calif. 90803 213-439-5910

1931, Model K, LeBaron Town Car, needs eight inside door handles & escutcheons, both horns, horn button & spring, distributor cap, and so on. What do you have??? PLEASE HELP ! Robert Castignetti, 10 Hart Street, Burlington, Mass. 01803 617-272-2159

1935, Model K, 7-Passenger Touring, needs both horns, plated strips that go on dash, suitable trunk, spring covers without holes or other damage, and any literature showing the 7-Passenger Touring. Lawton Clark, 2223 South Hayden, Amarillo, Texas 79109 Office 806-355-9586 Home 806-373-0417

1935, Model K, needs gasket set for heads, manifolds, valve cover, and oil pan. Eileen Rixey, 84 San Benancio Road, Salinas, Calif. 93901 408-484-1278

Ads are free to members. To avoid error, please print or type your ad and include your name, full address (with zip code), and phone number (with area code). Mail your ad to Joe Hordubay, Oldfields School, Glencoe, Maryland 21152.

PLEASE NOTE:

CLUB POLICY LIMITS ADS TO LINCOLNS OF THE MODEL "L", "K", "KA & KB", AND LATE "K" SERIES. WE ARE STILL GETTING ADS FOR ZEPHYRS, CONTINENTALS, AND LATE MODEL LINCOLNS.

POTPOURRI

By Jim Elliott

In an effort to help fellow members the following list of books, magazines, catalogues, and suppliers, is submitted for your edification. Since each of us has different standards I leave you, the reader, with this advise "let the buyer beware".

BOOKS

LINCOLN, CLASSIC LEGEND OF EXCELLENCE, (Book No.3 Series 1), by Highland Enterprises, Box 7000, Dallas, Texas 75209. The cost of the 6"X 9" black and white rendering of original LINCOLN ads from 1924-42 is apx. $2.98. It might make a good reference to check off the originals you have or the ones you may wish to look for at a swap meet. This book and the next two can be bought from Classic Motor Books (see *HEMMINGS MOTOR NEWS*).

CAR GRAPHIC LIBRARY, (Book #47), this 6"X 8" black and white book has its title and all text in Japanese so you have a good excuse for only looking at the pictures, some of which are worth buying the book for.

BASIC AUTOMOTIVE TOOLS AND HOW TO USE THEM, Petersen's Tool Book No.1. This 8"X 11" black and white book is a step by step "how to do it right" book for all us Mr. Bentwrenches. The price is $2.95 for 171 pages of information.

CREATIVE VENEER CRAFT, By Harry and Mary Hobbs. Albert Constantine and Sons, Inc., 2050 Eastchester Road, Bronx, New York 10461 (phone 212-792-1600). Copyright 1973, price is $1.95. This 8"X 11" dr. brown and white book shows some veneer projects and some stock veneer trim that are available from Constantine. This book also has alot of good "how to do it right" information and thus would be good reading material for anyone contemplating the restoration of veneer. This book has 34 pages.

VENEERING SIMPLIFIED, By Harry Jason Hobbs. Also from Constantine is this one that I don't have yet, but from their written description it sounds well worth the $5.95 postpaid asking price. So I am going to get one.

CONSTANTINE'S STEP-BY-STEP PRO FINISHING FOR THE AMATEUR, By Michael DeMeo. This is another one from Constantines that I don't have - but probably should. They say it "explains how to use bleaches, stains, filers, sealers, varnishes, and modern lacquers". The price is $3.95.

SUBSCRIPTION MAGAZINES

WORKBENCH, published bimonthly by Modern Handcraft, Inc., 4251 Pennsylvania, Kansas City, Missouri 64111. The annual subscription is $4.00. If you are facing wood repairs to your LINCOLN you may find some helpful hints or ads for useful supplies in this magazine. However, the main direction of this publication is at the "do it yourselfer" with a well equipped shop and advanced skills, who is looking for home improvement projects.

MAIL ORDER CATALOGUES

"CONSTANTINE'S WOOD CATALOG/YEARBOOK 1976", (see *CREATIVE VENEER CRAFT* for address). This is a must item if you are going to be doing any veneer restoration. Listed are special veneering tools, rare woods, veneer selector (in color), ready-made inlay wood borders, and upholstery tools. The catalogue is 50¢ and for an additional $1.00 you can order a packet of 20 wood veneer samples. With this catalogue, their above listed books, and Sally Ann's article (page 4 & 5 Jan/Feb. F & B) you should be able to restore the veneer in your LINCOLN to look factory fresh.

"HARD-TO-FIND TOOLS AND THINGS", Brookstone Company, 122 Vose Farm Road, Peterborough, New Hampshire 03458. This is one of the neatest catalogues of unusual tools, gadgets, and the like. If you like nice tools and do not mind the cost this quarterly issued free catalogue will interest you.

"EDMUNDS", Edmund Scientific Co., 300 Edscorp Bldg., Barrington, N.J. 08007. Although the majority of the items in this catalogue are for astronomy, science, and optics projects, there are some interesting tools and miscellaneous.

"MATERIAL HANDLING, FACTORY, AND OFFICE EQUIPMENT", Global Equipment Co., 6255 Sunset Blvd., Los Angeles, Calif. 90028. Although you probably can find a local supplier, this catalogue might make a nice reference for storage racks, H.D. work benches, hoists, safety cans, and safety storage cabinets for use in your garage or shop.

SUPPLIERS OF USEFULL PRODUCTS

"TINY TORCH", Instrument Division, Tescom Corp., 2600 Niagara Lane, Minneapolis, Minnesota. This torch is said to produce a 6,000° F flame using acetylene, hydrogen, LP or natural gas and oxygen to weld wires as small as 0.002 in. dia., yet is hot enough to weld 16 gage steel. It operates at pressures from 2 to 4 psi and can make precision flames small enough to work through the eye of a needle. A torch like this might be good for working on pitted radiator shells, lights, horns, door handles, and other items requiring fine detail work.

"GASKET-CUTTER, UTILITY SCISSORS, and HUB CAP REMOVER", Thexton Manufacturing Co., 7019 Oxford St., Mpls., Minn 55426. Write them and ask for their catalogue no. 76 supplement no. 76-4 for an illustrated list of these tools. The hub cap tool probably would only be of use to the 1935-40 K.

"KEENSERTS", Tridair Industries, 3000 West Lomita Boulevard, Torrance, Calif. 90505. "The best way to repair stripped threads, in minutes, without special taps or tools.", says Tridair ad.

Permatex has fifteen products in spray cans that may be of help in your shop, some of which are HIGH TACK, BELT DRESSING, SILICONE LUBRICANT, GREASE CUTTER, PENETRATING OIL, SPRAY ADHESIVE, PLASTIC CLEANER, and CHAIN LUBE.

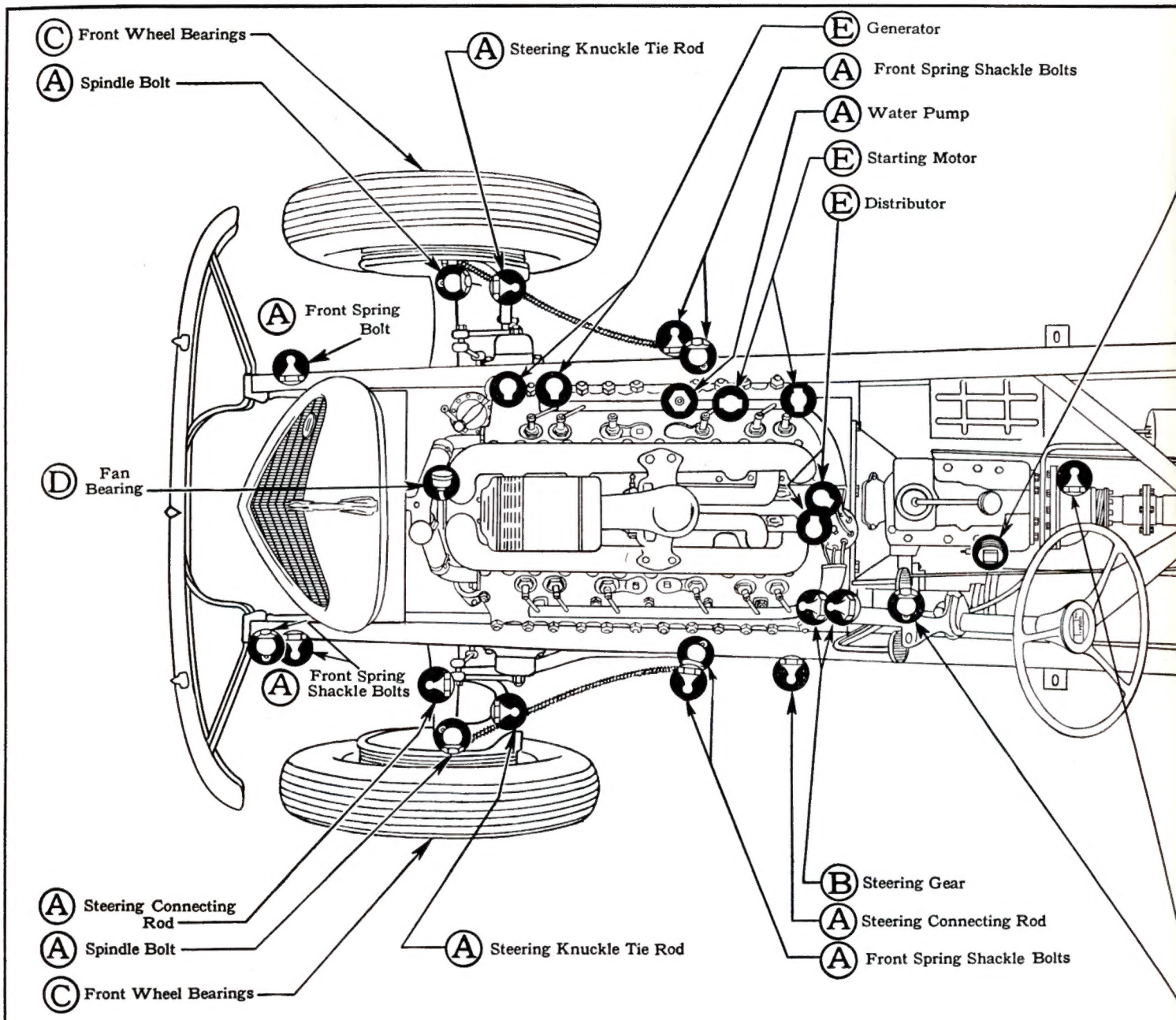
Central Tool Company, Inc., Cranston, R.I. 02910. You can write them and ask for catalogue no. SC-7 and mechanics net price sheet #M7576 which lists several fine tools for precision measuring (what other kind is there for a LINCOLN ???).

"UNIWRAP, VAPOR WRAPPER, and PROTEK WRAP" from Daubert Chemical Co., 709 Enterprise Drive, Oak Brook, Ill. 60521. This is a line of "volatele corrosion inhibitor treated packing papers" is for the wrapping of ferrous and non-ferrous metals with the intent of stopping rust or corrosion during long time storage. Which should be great for storing mint parts or freshly restored parts awaiting final assembly on the car.

ED NOTE: If this column is helpful to you please let me know. If you want this column continued then please share some of your leads with the other members.

You are probably wondering why the JULY/AUGUST issue of the F&B is comin out in Sept., and why there are no pictures, and why it is only twelve pages long, and why there is no story on Dearborn. There is no excuse for an editor to be late with his copy so I offer no defense save than to do better. Now, as for the lack of pictures and reduced number of pages, there is an excuse for that. The F&B is on a temporary austerity program to help the treasury overcome the pressure of the printing costs for the reprint projects undertaken by your club. The SEPT/OCT. issue of the F&B will feature Dearborn. Also, the sale of reprints at Dearborn grossed about $700.00 and if the sales at Hershey are up to expectations, the F&B will have more pictures and sixteen pages soon.

Since you, the reader, are now looking forward to more pictures and pages, where do you suppose they will come from? My library is just about exhausted and thus a plea goes out for anything you may have to send in. We are in desperate need of cover car stories with b&w photographs. Please make sure that your contributions can be replaced as we can not guarantee safe return - although we do try.

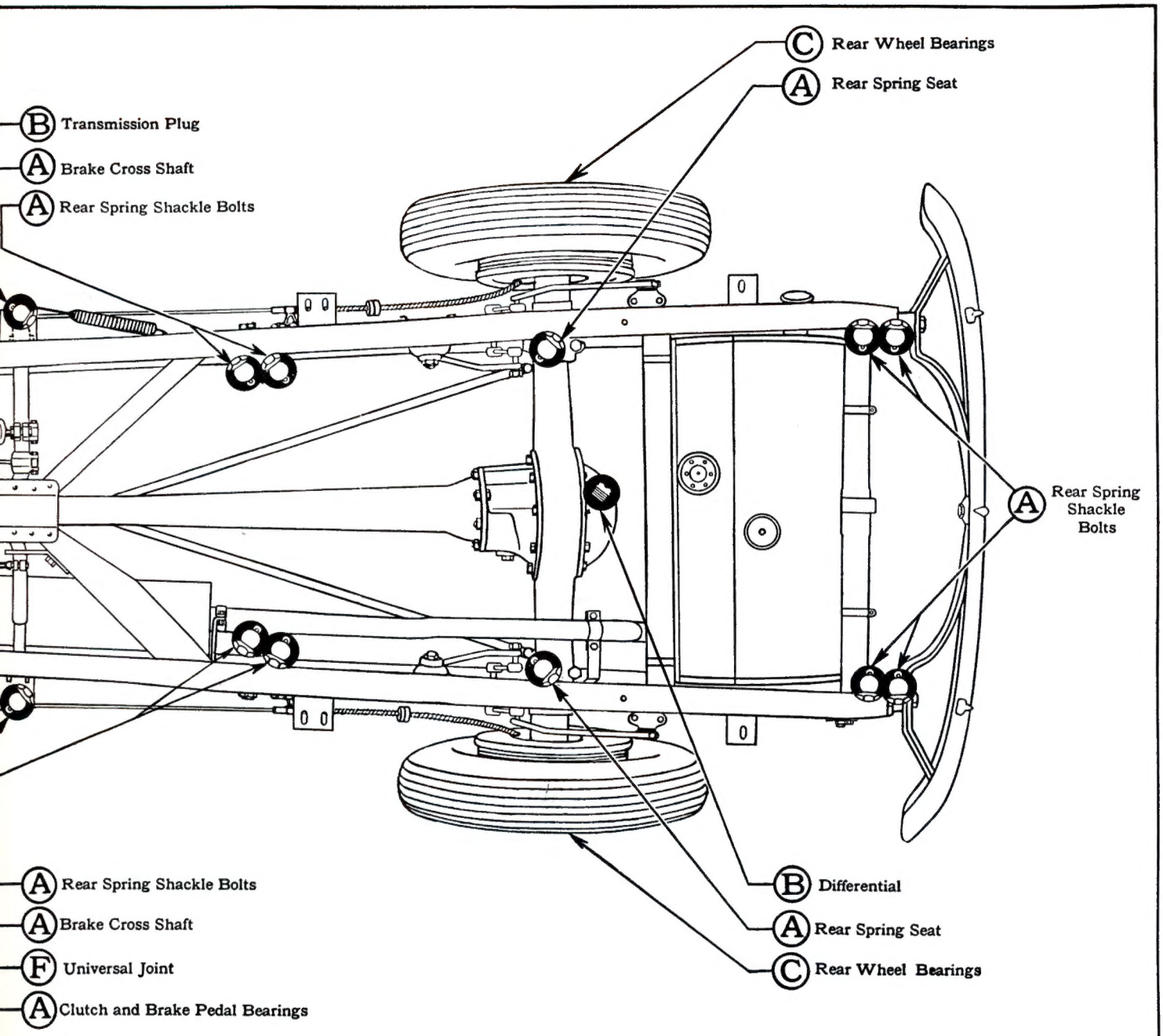


Ⓐ-Lubricate Every 1000 Miles (Gear Lubricant)

Ⓑ-Fill to Proper Level Every 2000 Miles (Gear Lubricant)
(Every 5000 Miles, Drain and Refill Transmission and Differential)
(See Page 7 for Correct Viscosity for Summer and Winter.)

Ⓒ-Repack Bearings Every 5000 Miles (Fiber Grease)

Figure 2—Lu



Ⓓ- Lubricate Every 2000 Miles (Cup Grease)

Ⓔ- Few Drops Oil Every 1000 Miles

Ⓕ- Lubricate Every 5000 Miles (Add ½ Pint Gear Lubricant)

(Clevis Pins and Brake Linkage Should be Oiled Every 1000 Miles)
(Change Engine Oil Every 3000 Miles in Summer. Every 2000 Miles in Winter)
(Use S.A.E. 40 in Summer and 20W in Winter)

ation Chart

LINCOLN V12 1937-40

MODEL IDENTIFICATION

SERIAL NUMBER: On plate on front of dash. Use Engine Number (following).

ENGINE NUMBER: Stamped on left side of crankcase below center of block. First No. K-7501 (1937), K-9001 (1938), K-9451 (1939).

TUNE-UP

COMPRESSION:—Ratio—6.38-1 Std. aluminum head. Pressure—138 lbs. at 1000 R.P.M. or 105-110 lbs. at cranking speed of 100 R.P.M.

VACUUM READING:—18-20" steady reading with engine idling at 5-7 M.P.H.

FIRING ORDER: 1-4-9-8-5-2-11-10-3-6-7-12. See diagram for cylinder numbering and spark plug cable connections.

SPARK PLUGS: Champion No. 7. 18 mm. Metric type. Gaps—.028-.030".

IGNITION: See Coil, Condenser, and Distributor.
Breaker Gap—.020" Cam Angle 36° (closed).
Synchronization—Movable contacts open 33½° (distr.) after fixed set (unequal 33½-26½-33½° firing intervals).
Automatic Advance—*See Distributor.*

IGNITION TIMING: See Ignition Timing.
Std. Setting—At TDC. with flywheel mark "D2/12C" at indicator in inspection hole in top right face of housing. NOTE—Movable contacts open 33½° (distr.) after this point (unequal 33½-26½-33½° intervals).

CARBURETION: See Carburetor & Carb. Equipment.
Idle Setting—Both idle screws midway between "miss" and "roll" points or set for highest steady vacuum gauge reading. Idle speed 5-7 MPH.
Float Level—Fuel level 9/16" below top edge of float bowl.
Accelerating Pump—Inner hole—Summer, Outer hole—Winter.

Fuel Pump Pressure: 4½ lbs. maximum.

VALVES: See Valve Timing.

Tappet Clearance—None in service (hydraulic type take-up).

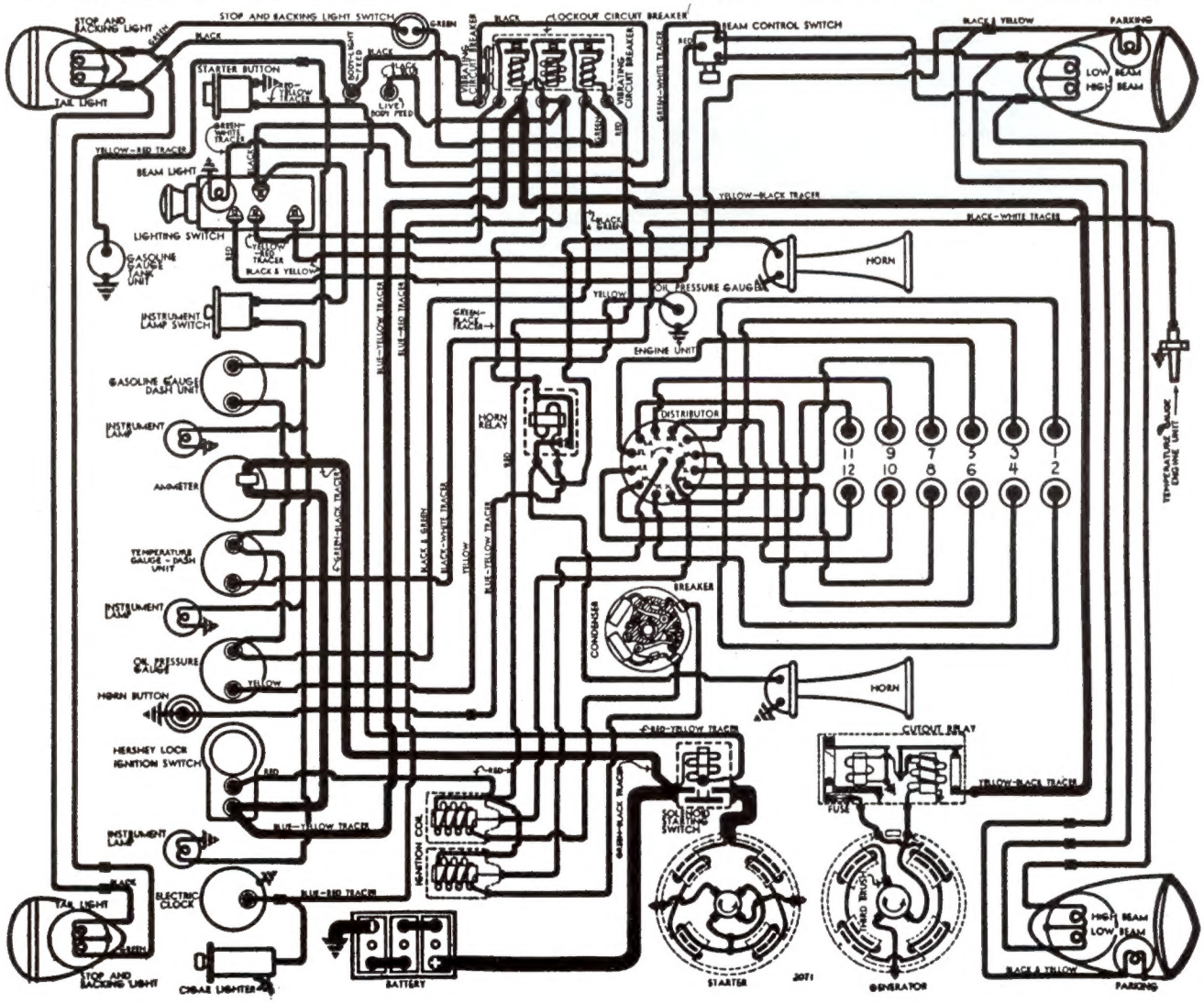
STARTING: See Battery, Starter, Generator, Regulator.

IGNITION

Ignition Switch:—Oakes Steering Column & Ignition Lock No. 301539, Lincoln Part No. K-7675-F.
Lock Cylinder—Hurd.

COIL: Auto-Lite Model CE-4001-L. Two coil unit mounted on dash above distributor.
Ignition Current—1.5 amperes idling, 5 amperes stopped for each coil.

CONDENSER: Auto-Lite Part No. IG-2671A & IG-2671E (one each). Capacity—.20-.25 microfarad.



DISTRIBUTOR: Auto-Lite Model IGM-4003 (Std.), IGM-4003A (Exp.). Double breaker, 6 lobe cam, full automatic advance type. Contacts open alternately.
Firing Interval—Alternate opening at 33½ and 26½° intervals corresponding to unequal 67 and 53° firing intervals of engine. Contacts must be synchronized. See Timing.
Breaker Gap—Set at .020" (both sets equal).
Cam Angle or Dwell—36° closed, 24° open. Each set operates independently.

Automatic Advance—IGM-4003

Distributor Degrees	R.P.M.	Engine Degrees	R.P.M.
Start	300	0	600
2	660	4	1320
4	1000	8	2000
6	1365	12	2730
8.5	1800	17	3600

Automatic Advance—IGM-4003-A

Start	300	0	600
4	450	8	900
6	800	12	1600
8	1140	16	2280
10	1500	20	3000
12	1840	24	3680

Removal:—Distributor mounted between banks at rear of engine. To remove, take off distributor conduits and cap, take out hold-down screws in advance arm.

IGNITION TIMING

IGNITION TIMING:—

	Flywheel Degrees	Piston Pos.
All engines	At TDC	.000" TDC.

NOTE—Right hand (stationary) contacts control right coil and fire spark plugs in right cylinder bank. Left hand (movable) contacts control left coil and fire plugs in left bank.

Timing (Stationary Contacts)—With #2 piston (front cylinder, right bank) on top dead center entering power stroke and flywheel mark 'D2/12C' at indicator in inspection hole in right top face of flywheel housing, loosen taper lockscrew in center of breaker cam, carefully locate cam so that right hand (stationary) contacts are beginning to open, tighten lockscrew. Synchronize movable contacts.

Synchronization (On the Engine)—Turn engine over 67° to firing position of piston #1 (front cylinder, left bank), stop with piston on top dead center when flywheel mark 'D1/11C' lines up with indicator. Loosen lockscrews on movable subplate, shift plate by turning eccentric adjusting screw until movable contacts begin to open, tighten lockscrews.

Synchronization (Other methods)—If distributor synchronized on rotary spark gap or other types of equipment, set movable contacts to open 33½° after stationary contacts. Firing intervals unequal 33½-26½-33½ distributor degrees.

CARBURETOR

CARBURETION:—Carburetor—Stromberg Model EE-22, 1.437" (1 7/16") dual downdraft type.
For complete data, refer to Carburetor Index.
Idle Adjustment—Warm up engine before adjusting. Manufacturer recommends use of vacuum gauge and adjustment of idle adjusting screws for highest steady vacuum. If vacuum gauge not used, adjust throttle stopscrew for 5-7 M.P.H. idling speed, cut out one bank of cylinders by disconnecting coil primary lead, adjust idling adjusting screw for carburetor barrel feeding the other bank by turning screw in until engine begins to miss and then out until engine fires smoothly. Reconnect coil, disconnect second coil and repeat adjustment for other idle adjusting screw. Idle engine for all 12 cylinders and readjust for correct 5-7 MPH idling speed.
Accelerating Pump Adjustment—Engage pump link in proper hole in throttle lever as follows:
Inner Hole—Minimum stroke—Summer setting.
Outer Hole—Maximum stroke—Winter setting.

CARB. EQUIPMENT

Air Cleaner: AC #1528347 (1937), #1528497 (Others), oil-wetted type.

Fuel Pump:—AC. Type I #1521218 Diaphragm type combination fuel-and-vacuum pump.
For complete data, refer to Carburetion Equip. Index.

Gasoline Gauge: King-Seeley Electric. K-S No. 6250, Lincoln No. K-13099D (dash unit), K-S No. 5850, Lincoln No. 70-9275 (tank unit).
For complete data, refer to Carburetion Equip. Index.

BATTERY

BATTERY:—Exide, Type X-21-L. 6 volt, 21 plate, 147 ampere hour capacity (20 hour rate).
Starting Capacity—175 amperes for 20 minutes.
Zero Capacity—300 amperes for 6.1 minutes.
Grounded Terminal—Negative (—) terminal.
Location—On right side under front floor.

STARTER

Auto-Lite Model MAO-4003B (Std.), MAO-4004B (Exp.). Armature No. MAO-2006.
Drive—Outboard Bendix Type RB10FXXTD.
Cranking Engine—100 RPM, 150-200 amp., 5 volts.
Rotation—Counter-clockwise at commutator end.
Brush Spring Tension—24-32 ozs. (new brushes).

Performance Data

Torque	R.P.M.	Volts	Amperes
0 ft. lbs.	2700 Min.	5.5	44 Max.
1.5 "	1360	5.5	100
5.7 "	740	5.0	200
11.1 "	500	4.5	300
16.8 "	320	4.0	400
22.3 "	180	3.5	500
34.0 "	Lock	3.0	715
48.5 "	Lock	4.0	975

Starting Switch:—Model SS-4004 (MAO-4003B), SS-4005 (MAO-4004B). Pushbutton R.B.M. No. 3225. Magnetic type switch mounted on starter and controlled by pushbutton on instrument panel.
For complete data, refer to Electrical Equipment Index.
Removal:—Starter flange mounted on right front face of flywheel housing. To remove, take out 3 flange mounting screws.

GENERATOR

Auto-Lite Model GBC-4103, Armature No. GBC-2035. Third brush control in conjunction with Current Regulator (two-rate charging control). Ventilated by fan on drive pulley.
Charging Rate Adjustment—Use test meters to check output. Ground regulator by connecting short jumper between fuse cap on regulator and generator frame while making adjustment. Turn slotted screw on commutator endplate (upper hexagonal headed screw) clockwise to increase or counter-clockwise to decrease charging rate. Remove jumper wire.
IMPORTANT NOTE—Third brush stop is set to limit maximum possible output of generator to 24-25 amperes at 8.0 volts and is locked in this position (third brush cannot be shifted beyond this point).
Maximum Charging Rate—22 amperes (cold), 16 amperes (hot), 1300 R.P.M., 20-25 M.P.H.

Performance Data

Cold Regulator Contacts Closed			Hot		
Amps.	Volts	R.P.M.	Amps.	Volts	R.P.M.
0	6.4	460	0	6.4	525
4	6.7	525	4	6.8	640
8	6.95	600	8	7.2	750
12	7.25	680	12	7.6	940
16	7.55	800	16	8.0	1500
22	8.0	1300			

Rotation—Counter-clockwise at commutator end.
Brush Spring Tension—22-27 ounces.

Field Current—2.47-2.73 amperes at 6.0 volts.
Field Fuse—5 ampere in cup on regulator.
Motoring Current—4.46-4.94 amperes at 6.0 volts.

Removal:—Generator flange mounted on right rear face of timing chain case. Water pump and oil temperature regulator mounted on commutator end of generator. To remove, drain radiator, disconnect hose couplings and oil leads, remove water pump (optional). Take out 3 capscrews in generator mounting flange, pull generator to rear to disengage drive coupling. Do not disturb intermediate plate carrying drive sprocket or timing chain automatic idler sprocket will require resetting.

REGULATOR

Auto-Lite Model TC-4305A. Two Charge Type. On generator. Consists of Cutout Relay and Two-Rate Charge Control Regulator in a single case.
For complete data, refer to Electrical Equipment Index.

Cutout Relay

Cuts In—6.5-7.25 volts, 10 M.P.H.
Cuts Out—.5-2.5 ampere discharge current.
Contact Gap—.025-.040".
Air Gap—.010-.030" with contacts closed.

Regulator.

Contacts Open—8.25-8.75 volts at 70°F. Unit is overcompensated for temperature (operating voltage lower when hot).
Contacts Close—1.2-1.4 volts below opening point.
Contact Gap—.005" minimum.
Air Gap—.045" with contacts closed.

LIGHTING

Headlamps—Hall, pre-focused type.
1937-40 Models. Upper and lower beams controlled by foot selector switch on toeboard.

Adjustment—Aim headlamps straight ahead with top of upper beam 37" (lamp bulb height) above floor at 25 feet. Adjusting screws located on reflector flange and lense must be removed. Make final check with lenses in place.

Beam Indicator—Located in light switch button Lighted whenever upper beams are lighted.

Switches (1937-40)

Lighting—R.B.M. No. 2400 ('37), 2430 ('38-39).
Foot Selector—R.B.M. No. 2450 ('37), 1092 ('38-39).
Instrument—Douglas, Lincoln No. 86-13740-B.
Stop Light—Gen'l. Ind., Lincoln K-10428-B.

MISC. ELECTRICAL

CIRCUIT BREAKER:—R.B.M. Model 1630. Consists of two vibrating and one lock-out circuit breaker in case on dash (see diagram for circuits controlled by each unit.

Performance—Begin to operate with load of 35-40 amperes, limiting load to 15 amperes maximum with dead short-circuit across terminals.

Contact Spring Tension—5 ounces minimum.

FUSES: Generator Field—5 ampere on regulator.

HORNS:—Sparton. Vibrator type twin horns. Operated by horn relay. Horn current 11-13 amperes each.

Horn Relay:—R.B.M. No. 100072-L.
Contacts Close—4 volts Maximum across windings
Current Draw—.4-.55 amperes at 6.0 volts.

ENGINE

ENGINE SPECIFICATIONS:—Own. 12 cylinder, 67° Vee, 'L' head type. Cylinder block for each bank cast enbloc and separate from crankcase.
Bore—3.125". **Stroke**—4.50".
Displacement—414 cubic inches.
Rated Horsepower—46.8 S.A.E.
Developed Horsepower—150 at 3400 R.P.M.
Compression Ratio—6.38-1 Std. aluminum head.
Compression Pressure—138 lbs. at 1000 R.P.M. or 105-110 lbs. at cranking speed of 100 R.P.M.
Vacuum Reading—18-20" steady reading with engine idling at 5-7 M.P.H.

PISTONS:—Lynite, aluminum alloy, T slot, Cam ground type with oxidized bearing surface (hard oxide formed on outer surface). Recondition engines to take finished replacement pistons. **Length**—3.87". **Weight**—12.5 ozs. (less rings, pin, locking screw). **Removal**—Pistons and rods removed from below. **Clearance**—.025" top, .002" bottom. See Fitting New Pistons.

Replacement Pistons:—Finished pistons furnished standard and .0025", .015", .030" oversize.

Fitting New Pistons: Use .002" feeler inserted between piston and wall on side opposite slot at right angles to pin bosses to check clearance. Pull required to withdraw feeler must be within 5-7 lbs.

Installing Pistons:—Slot toward left (viewed from drivers seat) for all pistons.

PISTON RINGS:—Two compression, two oil control rings per piston, all above pin. Lower ring groove drilled with oil drain holes.

Ring	Width	End Gap	Side Clearance
Comp. Top	.1235-.1240"	.008-.015"	.0025"
Comp. #2	.1235-.1240"	.008-.015"	.0015"
Oil Cont.	.1545-.1550"	.007-.015"	.0015"

Replacement Rings: Std., .002", .015",. 030" oversize.

PISTON PIN:—Diameter—.875". **Length**—3". Pin locked in piston by locking screw in one boss.
Pin Fit in Rod Bushing—.0005" clearance.

CONNECTING ROD:—Weight—38 ozs. **Length**—10.875".
Crankpin Journal Diameter—2.500".
Lower Bearing—Steel-backed, copper-lead lined.
Clearance—.0015-.003". Sideplay .006-.015" (total).

Bearing Adjustment:—None (no shims). Replace bearings. Do not file rods or caps. Bearings furnished .020" undersize.

Installing Rods:—Number on rod and cap must correspond. Install in same numbered cylinder with marks pointing down toward oil pan.

CRANKSHAFT:—4 Bearing. Integral counterweights.
Journal Diameters—2.625" (all bearings).
Bearing Type—Steel-backed, copper-lead lined.
Clearance—.001-.003".

Bearing Adjustment:—Shims. Do not file caps.
Replacement Bearings:—Furnished .020" undersize.
End Thrust:—Taken by rear main bearing. Endplay .004-.007". No adjustment (replace bearing).

CAMSHAFT:—5 bearing. Duplex chain drive with automatic idler sprocket take-up.
Journal Diameters—#1, 1.500"; #2, 3, 4, 2.250"; #5, 1.250". Front bearing must be removed to take out camshaft.
Bearing Type—Steel-backed, babbitt bushings.
Clearance—.0015-.003".

End Thrust:—Taken by front bearing. Endplay .004-.006". No adjustment (replace bearing).

Timing Chain:—Morse Duplex. Width 1½". Pitch ⅜". Length 104 links or 39".

Camshaft Setting:—Sprockets marked. Mesh chain with sprockets turned so that marks are adjacent and in line with a straightedge across shaft centers.

VALVES:—

	Head Diameter	Stem Diameter	Length
All valves	1.687"	.3125"	6.750"

	Seat Angle	Lift	Stem Clearance
All valves	45°	.343"	.003-.004"

Valve Guides:—Press fit in block. Finish ream to size for correct stem clearance.

Valve Lifters: Wilcox-Rich Zero-Lash hydraulic valve lifters. Mushroom type. Diameter .750".
See Miscellaneous Section for complete data.

Valve Springs:	Pressure	Length
Valve Closed	55-60 lbs.	2.687"
Valve Open	130-140 lbs.	2.343"

VALVE TIMING

Tappet Clearance: None in service (hydr. take-up).
Valve Timing:—See Camshaft Setting above.
Intake Valves—Open 21° BTDC. Close 49° ALDC.
Exhaust Valves—Open 57° BLDC. Close 11° ATDC.
1937-40 Note—Hydraulic type valve take-up makes it impossible to determine valve opening except by removing cylinder head and using dial indicator to check valve movement.

LUBRICATION

LUBRICATION:—Pressure system. Gear type oil pump

mounted in crankcase at rear of engine. Harrison type oil temperature regulator mounted on right side of crankcase.

Normal Oil Pressure—40 lbs. at 50 M.P.H.

Crankcase Capacity—12 quarts.

Oil Pressure Regulator: Located on outlet header near oil temperature regulator on right side of crankcase. Operates at 40 lbs. Not adjustable. Additional non-adjustable by-pass valve located at forward end of oil header in crankcase.

Oil Temperature Regulator: Harrison. Located on right hand side of crankcase and connected in water pump inlet line.

Oil Pressure Gauge: King-Seeley Electric. K-S No. 6255, Lincoln No. K-13116D (dash unit), K-S No. 5460, Lincoln No. 48-9278 (engine unit).

See Miscellaneous Section for complete data.

COOLING

COOLING SYSTEM:—Water Pump:—Centrifugal type with adjustable packing. On rear of generator.

See Water Pump Section for complete data.

Removal—Drain radiator, disconnect hose couplings, oil temperature regulator lines, drive coupling, take out water pump mounting screws.

Radiator Shutter Thermostat:—In radiator top tank, connected to shutters by rod and levers. Should be practically closed at 145°F., open at 160°F.

Hood Shutter Thermostat: One on each hood side panel. Linked to ventilator doors on panel. Start to open at 95°F, full open at 110°F.

See Miscellaneous Section for complete data.

Water Capacity—32 quarts.

Drain Valves:—One only, at lower inlet elbow of water pump.

CLUTCH

CLUTCH:—Long Model 12CB-CL. Single plate, dry disc

See Clutch Section for complete data.

Facings—Woven type, 2 required. Inside Diam. 7", Outside Diam. 12". Thickness .137".

Adjustment:—Free movement of clutch pedal should be 1". To adjust, loosen locknut and turn adjusting screw on clutch throw-out fork below pedal shaft. Clearance between pedal and underside of toeboard controlled by stopscrew above pedal shaft.

Removal:—Disconnect speedometer cable, rear brake cables, shock absorber links, spring clips on axle housing. Take out clutch housing mounting screws (housing integral with transmission case), slide entire transmission and rear axle assembly to rear to expose clutch. Take out clutch mounting screws in cover flange on flywheel.

TRANSMISSION

TRANSMISSION:—Own make. All helical gears. Constant mesh, synchro-mesh (second and high), sliding gears (low & reverse). NOTE—'Blocker' type synchronizer used on 1938-40 models.

See Transmission Section for complete data.

Removal:—Remove rear axle or slide assembly back to free transmission (see Rear Axle Section below). Take out clutch housing mounting screws (integral with transmission case), pull transmission straight back and remove.

UNIVERSALS

UNIVERSAL JOINT:—Spicer. One joint mounted within ball housing at rear of transmission case (torque tube drive).

See Universals Section for complete data.

REAR AXLE

REAR AXLE:—Own make. Full floating, spiral bevel gear type with straddle-mounted pinion and Torque Tube drive.

See Rear Axle Section for complete data.

Ratio—4.58-1. Backlash—.010". Screw adjustment.

Removal:—Disconnect speedometer cable, rear brake cables, shock absorber links, spring clips on axle housing. Take out universal joint ball housing bolts, pull rear axle to rear to free drive shaft at splined joint at universal.

Axle Shaft Removal—Axle shaft flange bolted to wheel at outer end (under dustcap). To remove shaft, take out flange screws, pull shaft out (does not disturb wheel bearings).

Wheel Bearing Adjustment:—Remove axle shaft, unscrew locknut within wheel hub, take off lockwasher, turn up adjusting nut until bearing clearance is hardly perceptible, replace lockwasher, locknut and axle shaft.

SHOCK ABSORBERS

SHOCK ABSORBERS:—Houde (Houdaille), Type 'ALG'. Double acting hydraulic, automatic thermostatic valve type.

See Shock Absorber Section for complete data.

FRONT SUSPENSION

Front Suspension:—Conventional 'I' beam section front axle with Reverse-Elliott ends and semi-elliptic springs.

Kingpin Inclination—7½° crosswise.

Caster—1½° (normal load). Limits 1-2°. Adjust by inserting wedge shims between spring and spring pad on axle.

Camber—1°. Limits ½-1°. Bending of axle to correct camber not recommended.

Toe In—1/16-⅛". Adjusted in usual manner by loosening clamp bolts and turning tie rod.

Steering Geometry—Inner wheel turned **22¾° (136" WB), 22 1/3° (145" WB),** outer wheel **20° (all cars).** Allowable variation **½°.**

STEERING GEAR

Steering Gear: Gemmer Special Lincoln Model. Worm-and-Roller type.

See Steering Gear Section for complete data.

BRAKES

BRAKES:—Service—Bendix Mechanical, Duo-Servo, Single anchor type with Vacuum Power operation. Hand lever applies all four service brakes.

See Brake Section for complete data.

Drum Diameter—15.125". Cast-iron, steel-web type.

Lining—Molded (all shoes 1937, primary '38-40), woven (secondary shoes '38-40). Width 2½". Thickness ¼". Length per wheel 33½".

Clearance—.010" at heel and toe of each shoe.

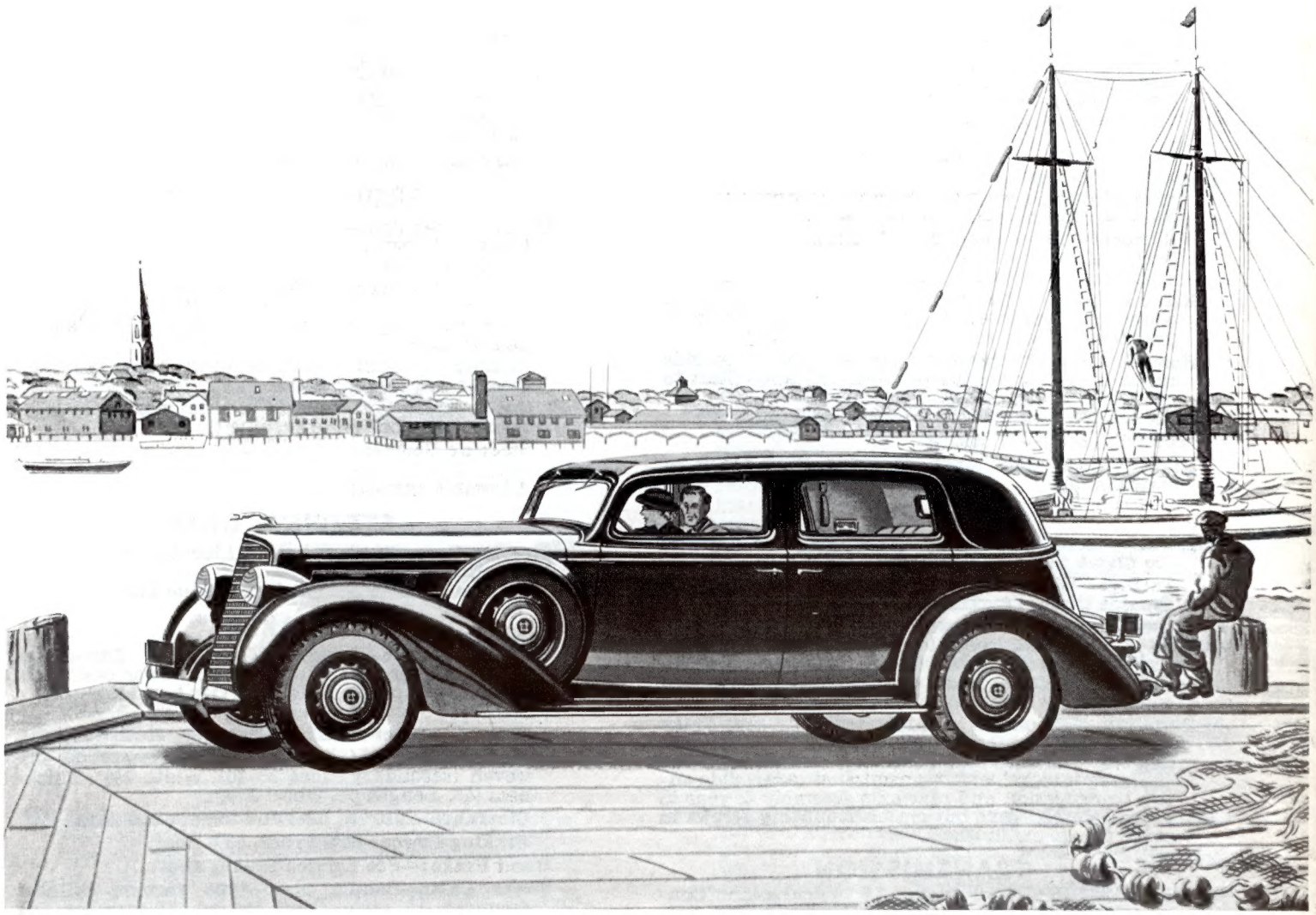
Braking Power—50% Front, 50% Rear.

Hand Brake:—See Service Brakes above.

Power Unit:—Bendix plain type vacuum cylinder mounted on right front leg of 'X' member and linked to brake cross-shaft. Control valve connected in linkage between brake pedal and cross-shaft.

See Brake Section for complete data.

"You might as well buy it. I have a closetful of clothes that will go with it." it."



THE FIVE-PASSENGER TWO-WINDOW SEDAN AT GLOUCESTER

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